AMENDMENT TO THE CLAIMS

1.   (Previously Presented) A method, comprising:

performing a process step upon a batch of workpieces using a processing tool;

performing a tool state analysis upon said processing tool; and

performing a dynamic metrology routing adjustment process based upon said tool state analysis, said dynamic metrology routing adjustment process comprising correlating said tool state analysis to said batch of workpieces and adjusting a metrology routing based upon said correlation.

2.   (Original) The method of claim 1, wherein performing said process step upon said batch of workpieces further comprises performing said process step upon a batch of semiconductor wafers.

3.   (Original) The method of claim 1, wherein performing said tool state analysis upon said processing tool further comprises acquiring tool state data.

4.   (Original) The method of claim 2, wherein acquiring said tool state data further comprises acquiring at least one of a pressure data, a temperature data, a humidity data, and a gas flow rate data relating to said process step performed upon said workpiece.

5.   (Original) The method of claim 1, wherein performing said tool state analysis upon said processing tool further comprises performing a tool health analysis relating to said processing tool.

6.   (Original) The method of claim 1, further comprising performing a fault detection analysis relating to said processing of said batch.

7.   (Original) The method of claim 6, wherein said fault detection analysis further comprises determining at least one fault relating to an operation performed by said processing tool.

8.   (Original) The method of claim 6, wherein said fault detection analysis further comprises determining at least one fault relating to said batch.

9.   (Original) The method of claim 1, wherein performing said dynamic metrology routing adjustment process further comprises modifying the position of said batch in a metrology queue.

10.   (Original) The method of claim 1, wherein performing said dynamic metrology routing adjustment process further comprises modifying a sampling rate relating to a number of workpieces being analyzed by a metrology tool.

11.　(Original)　The method of claim 1, wherein performing said dynamic metrology routing adjustment process further comprises triggering an alarm to indicate a correlation of tool health violations to a batch.

12.　(Original)　The method of claim 11, wherein performing said dynamic metrology routing adjustment process further comprises modifying a fault tolerance level associated with said tool health violation.

13.　(Original)　A method, comprising:

performing a process step upon a plurality of batches of workpieces using a processing tool;

performing a tool health analysis upon said processing tool;

performing a fault detection analysis relating to said processing of said batches of workpieces;

correlating said tool health assessment to at least one of said batches of workpieces based upon said tool health analysis and said fault detection analysis; and

adjusting a metrology routing of at least one of said batches of workpieces based upon said correlation.

14.　(Original)　The method of claim 13, wherein performing said process step upon said batches of workpieces further comprises performing said process step upon batches of semiconductor wafers.

15. (Original) The method of claim 13, wherein performing said dynamic metrology routing adjustment process further comprises modifying a sampling rate relating to a number of workpieces being analyzed by a metrology tool.

16. (Previously Presented) An apparatus, comprising:

means for performing a process step upon a batch of workpieces using a processing tool;

means for performing a tool state analysis upon said processing tool; and

means for performing a dynamic metrology routing adjustment process based upon said tool state analysis, said means for dynamic metrology routing adjustment process comprising means for correlating said tool state analysis to said batch of workpieces and means for adjusting a metrology routing based upon said correlation.

17. (Previously Presented) A system, comprising:

a processing tool to process a batch of workpieces; and

a process controller operatively coupled to perform a tool state analysis upon said processing tool and to perform a dynamic metrology routing adjustment process based upon said tool state analysis, said dynamic metrology routing adjustment process comprising correlating said tool state analysis to said batch of workpieces and adjusting a metrology routing based upon said correlation.

18. (Original) The system of claim 17, wherein said workpieces are semiconductor wafers.

19. (Original) The system of claim 17, further comprising:

a tool state data acquisition unit operatively coupled to said process controller and to said processing tool, said tool state data acquisition unit to acquire tool state data relating to an operation performed by said processing tool;

a metrology tool operatively coupled to said process controller and to said processing tool, said metrology tool to acquire metrology data relating to said processed workpiece;

a fault detection and classification (FDC) unit operatively coupled to said process controller, said fault detection and classification unit to perform said fault detection process;

a tool health-wafer lot correlation unit operatively coupled to said FDC unit and to said tool state data acquisition unit, said tool health-wafer lot correlation unit to perform a correlation of the tool health relating to said batch of workpieces; and

a metrology dispatch unit operatively coupled to said tool health-wafer lot correlation unit, said metrology dispatch unit to adjust a metrology dispatch of a batch of workpieces for metrology analysis.

20. (Original) The system of claim 19, further comprising a database unit to store said at least one of metrology data, said tool state data, and said electrical test data.

21. (Original) The system of claim 20, wherein said tool state data acquisition unit comprises at least one of a pressure sensor, gas flow sensor, temperature sensor, humidity sensor, and an electrical sensor.

22.   (Previously Presented) An apparatus, comprising:

a process controller operatively coupled to perform a tool state analysis upon a
processing tool that is capable of processing a batch of workpieces and to perform
a dynamic metrology routing adjustment process based upon said tool state
analysis, said dynamic metrology routing adjustment process comprising
correlating said tool state analysis to said batch of workpieces and adjusting a
metrology routing based upon said correlation.

23.   (Original) The apparatus of claim 22, wherein said workpiece is a semiconductor
wafer.

24.   (Original) The apparatus of claim 22, further comprising:

a tool state data acquisition unit operatively coupled to said process controller and to said
processing tool, said tool state data acquisition unit to acquire tool state data
relating to an operation performed by said processing tool;

a metrology tool operatively coupled to said process controller and to said processing
tool, said metrology tool to acquire metrology data relating to said processed
workpiece;

a fault detection and classification (FDC) unit operatively coupled to said process
controller, said fault detection and classification unit to perform said fault
detection process;

a tool health-wafer lot correlation unit operatively coupled to said FDC unit and to said tool state data acquisition unit, said tool health-wafer lot correlation unit to perform a correlation of the tool health relating to said batch of workpieces; and

a metrology dispatch unit operatively coupled to said tool health-wafer lot correlation unit, said metrology dispatch unit to adjust a metrology dispatch of a batch of workpieces for metrology analysis.

25.   (Original) The apparatus of claim 24, wherein said tool state data acquisition unit comprises at least one of a pressure sensor, gas flow sensor, temperature sensor, humidity sensor, and an electrical sensor.

26.   (Previously Presented) A computer readable program storage device encoded with instructions that, when executed by a computer, performs a method, comprising:

performing a process step upon a batch of workpieces using a processing tool;

performing a tool state analysis upon said processing tool; and

performing a dynamic metrology routing adjustment process based upon said tool state analysis, said dynamic metrology routing adjustment process comprising correlating said tool state analysis to said batch of workpieces and adjusting a metrology routing based upon said correlation.

27.   (Original)   The computer readable program storage device encoded with instructions that, when executed by a computer, performs the method of claim 26, wherein

performing said process step upon said batch of workpieces further comprises performing said process step upon batch of semiconductor wafers.

28. (Original) The computer readable program storage device encoded with instructions that, when executed by a computer, performs the method of claim 26, wherein performing said tool state analysis upon said processing tool further comprises acquiring tool state data.

29. (Original) The computer readable program storage device encoded with instructions that, when executed by a computer, performs the method of claim 28, wherein acquiring said tool state data further comprises acquiring at least one of a pressure data, a temperature data, a humidity data, and a gas flow rate data relating to said process step performed upon said workpiece.

30. (Original) The computer readable program storage device encoded with instructions that, when executed by a computer, performs the method of claim 26, wherein performing said tool state analysis upon said processing tool further comprises performing a tool health analysis relating to said processing tool.

31. (Original) The computer readable program storage device encoded with instructions that, when executed by a computer, performs the method of claim 26, further comprising performing a fault detection analysis relating to said processing of said batch.

32.   (Original)   The computer readable program storage device encoded with instructions that, when executed by a computer, performs the method of claim 31, wherein said fault detection analysis further comprises determining at least one fault relating to an operation performed by said processing tool.

33.   (Original)   The computer readable program storage device encoded with instructions that, when executed by a computer, performs the method of claim 31, wherein said fault detection analysis further comprises determining at least one fault relating to said batch.

34.   (Original)   The computer readable program storage device encoded with instructions that, when executed by a computer, performs the method of claim 26, wherein performing said dynamic metrology routing adjustment process further comprises modifying the position of said batch in a metrology queue.

35.   (Original)   The computer readable program storage device encoded with instructions that, when executed by a computer, performs the method of claim 26, wherein performing said dynamic metrology routing adjustment process further comprises modifying a sampling rate relating to a number of workpieces being analyzed by a metrology tool.

36.   (Original)   The computer readable program storage device encoded with instructions that, when executed by a computer, performs the method of claim 26, wherein performing said dynamic metrology routing adjustment process further comprises triggering an alarm to indicate a correlation of tool health violation to a batch.

37.   (Original)   The computer readable program storage device encoded with instructions that, when executed by a computer, performs the method of claim 36, wherein performing said dynamic metrology routing adjustment process further comprises modifying a fault tolerance level associated with said tool health violation.

38.   (Previously Presented) A method, comprising:

performing a process step upon a batch of workpieces using a processing tool;

performing a tool state analysis upon said processing tool; and

performing a dynamic metrology routing adjustment process based upon said tool state analysis, said dynamic metrology routing adjustment process comprising correlating said tool state analysis to said batch of workpieces and adjusting a metrology routing based upon said correlation, adjusting said metrology routing comprising modifying the position of said batch in a metrology queue.

39.   (Previously Presented) The method of claim 38, wherein performing said process step upon said batch of workpieces further comprises performing said process step upon a batch of semiconductor wafers.

40.   (Previously Presented) The method of claim 38, wherein performing said tool state analysis upon said processing tool further comprises acquiring tool state data.

41. (Previously Presented) The method of claim 40, wherein acquiring said tool state data further comprises acquiring at least one of a pressure data, a temperature data, a humidity data, and a gas flow rate data relating to said process step performed upon said workpiece.

42. (Previously Presented) A system, comprising:

a processing tool to process a batch of workpieces; and

a process controller operatively coupled to perform a tool state analysis upon said processing tool and to perform a dynamic metrology routing adjustment process based upon said tool state analysis, said dynamic metrology routing adjustment process comprising correlating said tool state analysis to said batch of workpieces and adjusting a metrology routing based upon said correlation, said process controller being adapted to modify the position of said batch in a metrology queue.

43. (Previously Presented) The system of claim 42, wherein said workpieces are semiconductor wafers.

44. (Previously Presented) A method, comprising:

performing a process step upon a batch of workpieces using a processing tool;

performing a tool state analysis upon said processing tool; and

performing a dynamic metrology routing adjustment process based upon said tool state analysis, said dynamic metrology routing adjustment process comprising correlating said tool state analysis to said batch of workpieces and adjusting a

metrology routing based upon said correlation, wherein adjusting a metrology routing comprises modifying a position of said batch in a metrology queue.

45.   (Previously Presented) The method of claim 44, wherein performing said tool state analysis upon said processing tool further comprises performing a tool health analysis relating to said processing tool.

46.   (Previously Presented) A method, comprising:

performing a process step upon a workpiece;

receiving tool state data relating to said process step;

correlating said tool state data to said workpiece;

adjusting a metrology routing based upon said correlating said tool state data to said workpiece.

47.   (Previously Presented) The method of claim 46, further comprising processing a subsequent workpiece.

48.   (Previously Presented) The method of claim 46, wherein receiving said tool state data comprises acquiring at least one of a pressure data, a temperature data, a humidity data, and a gas flow rate data relating to said process step performed upon said workpiece.

49.   (Previously Presented) The method of claim 46, wherein correlating said tool state data to said workpiece comprises determining at least one fault relating to said process step.

50.   (Previously Presented) The method of claim 46, wherein adjusting a metrology routing comprises modifying the position of said workpiece in a metrology queue.